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ABSTRACT

The purpose of the project is to facilitate academically disadvantaged nursing students' success in a baccalaureate nursing program. The program's three main components are student support services, faculty development, and peer tutoring. Student services include diagnostic testing, group sessions, individual tutoring as needed, special workshops on academic enrichment topics, and post-testing. The services are correlated with the students' nursing courses and all students are encouraged to attend. The academic enrichment training for faculty is conducted by a reading consultant. Faculty members receive the training in small groups, one group per summer term. Faculty development workshops, conducted by outside consultants, are provided periodically for all faculty members during the project period. The nursing peer tutoring network was initiated at the beginning of the project period and is available to nursing students and intended nursing majors (freshmen). A faculty advisor supervises the peer tutoring activities. Student evaluations have been positive and reflect the project's success. Total annual attrition has decreased and students continue to receive high pass rates on the National Council Licensure Examination for Registered Nurses. (Author/MSE)

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AASCU/ERIC Model Programs Inventory Project

The AASCU/ERIC Model Programs Inventory is a two-year project seeking to establish and test a model system for collecting and disseminating information on model programs at AASCU-member institutions--375 of the public four-year colleges and universities in the United States.

The four objectives of the project are:

- To increase the information on model programs available to all institutions through the ERIC system
- To encourage the use of the ERIC system by AASCU institutions
- To improve AASCU's ability to know about, and share information on, activities at member institutions, and
- To test a model for collaboration with ERIC that other national organizations might adopt.

The AASCU/ERIC Model Programs Inventory Project is funded with a grant from the Fund for the Improvement of Postsecondary Education to the American Association of State Colleges and Universities, in collaboration with the ERIC Clearinghouse on Higher Education at The George Washington University.

ABSTRACT

The purpose of the Academic Enrichment Project for Disadvantaged Students was to facilitate nursing students' success in a baccalaureate nursing program. Three main components were developed which were student support, faculty development and peer tutoring.

Student support services included diagnostic testing, group sessions, individual tutoring as needed, special workshops on academic enrichment topics and post-testing. These student support services were correlated with their nursing courses and all students were encouraged to attend.

The academic enrichment training for faculty was conducted by the reading consultant. The faculty members received the training in small groups (one group per Summer term) over the three-year funding period. Faculty development workshops were provided periodically for all faculty members during the project period. The faculty development workshops were conducted by outside consultants.

The nursing peer tutor network was initiated at the beginning of the project period and has been available to nursing students and intended nursing majors (freshmen) since that time. A faculty advisor supervises the peer tutoring activities. Student evaluations have been positive and reflect the success of the project. As a result, total annual attrition has decreased and students continue to

receive high pass rates on the National Council Licensure Examination for Registered Nurses (NCLEX-RN).

INTRODUCTION

Recognizing that only 4.5 percent of the registered nurse population in the U.S. is black and 1.6 percent is Hispanic both the Secretary's Commission on Nursing and the Commonwealth Fund Study emphasized the need for increased participation of minorities in the health care profession.

While minority is not synonymous with academically disadvantaged, clearly many minority students are considered to be academically disadvantaged. Blandina Ramirez, Director of the American Council on Education's Office of Minority Concerns, states that "Colleges today are facing larger numbers of students who are disadvantaged by unequal schooling or poverty. Perhaps the most important issue facing colleges is improving the retention of minority students, but the institutions are simply not prepared."

In an effort to assist academically disadvantaged students in the College of Nursing at Chicago State University an Academic Enrichment Program was initiated in 1984. The goals established for the pilot year were to provide.

1. Academic assessment of students.
2. Faculty training in reading comprehension.
3. Student academic support.

Academic assessment of all students was initiated early in the pilot year. First, the reading levels for all students were assessed using the Nelson-Denny Reading Test. The results ranged from sixth grade level to thirteenth with most scores concentrated in the middle. Secondly, the required nursing textbooks were analyzed and the reading level ranged from twelfth to seventeenth. It was then understandable why students in the program had difficulty completing the program in four years, high attrition rate (45%) and fluctuating pass rates on first time take of the (NCLEX).

Consequently, the Academic Enrichment Project focused on reading comprehension. A reading teacher was contracted to teach the College of Nursing faculty how to teach reading comprehension. It was necessary to train the nursing faculty to teach reading because they already had the body of nursing knowledge. The goal was to have the basic strategies used to teach reading in general specifically applied to the discipline of nursing. This was the unique aspect of the program which provided the incentive for ongoing funding from the Division of Nursing, Department of Health and Human Services.

Both faculty and students received training simultaneously. All matriculating students who tested below the twelfth grade level were required to attend enrichment sessions. Topics covered in these group sessions included

such areas as getting the main idea, content mapping, problem-solving and critical thinking.

The project results were astonishing. Attrition rates decreased from 45 percent to 13 percent. There was a 200 percent increase in NCLEX scores. These improvements have been maintained over the past five years. In addition there has been improved student performance on reading comprehension, nursing vocabulary and study skills.

The one-year pilot project was funded by the Chicago Community Trust for the 1984-85 academic year. In 1986 the grant entitled "Academic Enrichment Project for Disadvantaged Students" was funded by the Department of Health and Human Services for three years. A two-year extension grant was funded in 1989 by the Department of Health and Human Services to continue the present program.

OVERVIEW OF RELATED NURSING LITERATURE

Students now enter college programs from a variety of backgrounds, at an older age and often attend college on a part-time basis (Mitchell, 1988). Nontraditional approaches to education that respond to students' needs, nursing survival courses, remediation and tutoring have been cited in recent literature as solutions presently being used in nursing education to increase student retention (Mitchell, 1988; Rosenfeld, 1988).

As a result of the changing characteristics of students entering nursing, more students need academic assistance in

order to successfully complete all required course work (Rosenfeld, 1988).

These problems place extra responsibilities on nursing faculty as they consider students for admission, provide student assistance for required course work and predict graduates' success on the National Council Licensure Examination for Registered Nurses (NCLEX-RN). In order to practice as a registered nurse, graduates must pass the NCLEX-RN. Numerous studies were found in the literature on the subject of predicting success on the NCLEX-RN; however, at this time there is no one recognized instrument for predicting student success in nursing programs (Donovon, 1989).

Donovon (1989) listed a variety of strategies for faculty use to decrease student attrition rates. She also placed the responsibility of identifying the at-risk student and providing strategies to increase student retention on the faculty (Donovon, 1989).

From the mid to late 1980's, there have been numerous studies published using many variables to predict student success on NCLEX-RN. However, there were few studies relating in particular to strategies, teaching methods or student support courses to specifically facilitate student success in nursing programs, especially in reference to academically disadvantaged students.

Many variables have been used in studies to predict student completion of the nursing program such as ACT

scores, high school rank, high school grade point average, college grade point average and grade point average of the science courses. Similar variables, including a variety of standardized examinations, have been used to predict success on the NCLEX. No formal research studies were found in recent nursing literature using the Nelson-Denny reading test, reading comprehension or study skills examinations to predict student success on the NCLEX-RN.

However, Burris (1987) described a student support program using reading comprehension (Nelson-Denny Reading Test) to identify educationally disadvantaged nursing students and train faculty to tutor at-risk students. Tutoring sessions focused on reading comprehension, nursing vocabulary and study skills. This was a pilot project; and general evaluation information for the one-year trial was included in the article. Based on the information given, this pilot project was successful.

Whitley and Chadwick (1986) looked at an integrated curriculum in a baccalaureate program and found that an integrated curriculum prepared the above average learner for the NCLEX-RN, but it was inadequate in preparing the average and below average student.

Brown (1987), using an experimental design, provided weekly discussion sessions for a group of nursing students who were at-risk juniors. The group sessions consisted of peer discussions and inter- actions pertaining to the nursing courses and study skills. Relaxation techniques

were also provided in the sessions. As a result, NCLEX-RN mean scores for the group receiving the treatment were the same as the rest of the class. The control group mean scores on the NCLEX-RN were lower than the rest of the class.

Quick, Krupa and Whitely (1985) suggested that students can be identified as at-risk at the end of the freshmen year. They advocated that further research be done using the Mosby Assess Test in predicting NCLEX-RN success. Jenks (1988) identified the end of senior year as the optimal time to predict NCLEX-RN success. The Mosby Assess Test correlated strongly with the NCLEX-RN. As with several other researchers (Glick 1986), Whitley and Chadwick (1986) and Yocom and Scherubel (1985), Jenks, Selekman, Bross and Paquet (1988) also found that clinical nursing course grades correlated with the NCLEX-RN. Pre-admission criteria did not correlate with success on the NCLEX-RN. In this study Jenks (1988) suggested future research to establish needed interventions that would improve the performance of students identified as at-risk.

In addition to pre-nursing GPA and prerequisite GPA, Allen, Higgs and Holloway (1988) reported that preadmission demographic data did not relate to students' success. Other interesting findings in this study were that experience as a nurse's aide or LPN, time spent working, and experience in upper-division college courses did not affect success in the nursing program.

Hughes (1988) described the nursing resource center approach to providing services for nursing students at-risk and a program to prepare students for taking the NCLEX-RN. Services that were provided for at-risk students were counseling, tutoring, referrals and media services. Prior to administering NCLEX-RN to seniors, the Mosby Assess Test was used to diagnose areas most needed for review. Then study plans were used for nursing review, accompanied by test taking and relaxation techniques. This was a descriptive study and no statistics were available other than feedback type of evaluations.

In an article by Mitchell (1988), Alverno College was used as a present day example of nontraditional education. Mitchell suggested that in order to decrease the attrition rates in nursing education and to serve today's non-traditional students, nursing education should develop different educational models.

In summary, many variables have been used in research studies to identify at-risk students and how to predict success on the NCLEX-RN. Very little information was found in the nursing literature regarding specific strategies that would effectively improve the success of at-risk nursing students other than test taking strategies, relaxation techniques and NCLEX-RN review. Several authors agreed that pre-admission criteria were useful for admission decisions and upholding admission standards, but should not be used to

prevent at-risk students from having a chance at being admitted.

There appears to be a consensus in nursing education that at-risk students should be identified early in the program and should be given assistance but the exact type of assistance and who should be able to give the specific assistance have not been determined. Most nursing faculty have not had training or formal education in planning and implementing remediation activities or training in teaching the various study skills.

Now that there are many studies available identifying the at-risk student and predicting success on the NCLEX-RN, research is needed to determine the most effective and cost efficient methods of providing assistance to these students. In so doing, attrition should drop and an increased numbers of qualified nurses should enter the nursing profession to serve society in providing health care.

BACKGROUND

In an assessment of the student population during the 1983-84 academic year, the College of Nursing identified the following problems:

1) High attrition rate;
2) Difficulty completing the nursing program in four years; and
3) Fluctuating pass rates of graduates on the initial NCLEX-RN.

When examining these situations, it was further identified that students were deficient in (1) reading comprehension, (2) vocabulary, (3) study skills, and (4) problem solving (critical thinking skills).

The at-risk students and their individual academic problems were identified through the one-year pilot project that was funded as a grant from the Chicago Community Trust during the 1984-85 academic year. As a result of the pilot study, new admission criteria were established. A systematic testing program was established to identify students' individual learning needs. A tutoring program was set up for both groups and individuals.

Prior to the start-up of the pilot project, four College of Nursing faculty members were trained to diagnose reading and study skills deficiencies of the nursing students, provide group remediation sessions and individual tutoring sessions as needed. The trained faculty had continued guidance from a reading consultant during the entire pilot project. Workshops were held for all faculty members to promote faculty development and familiarize them with the project.

Utilizing the student population assessment information and the pilot project results, a more comprehensive program was developed. This program, a three-year academic enrichment grant, was funded by the Department of Health and Human Services in July 1986.

DESCRIPTION

The Academic Enrichment Project was designed to identify at-risk students early in the nursing program and implement teaching/learning strategies to meet the students' identified academic needs. This project was intended to assist at-risk students to experience success by completing the baccalaureate nursing program without lengthy delays and to pass the National Council Licensure Examination for registered nurses (NCLEX-RN), preferably on the first attempt. The main objectives of the project were:

I. Provide "at-risk" students with an academic support program.

II. Provide a training program for faculty to facilitate effective teaching of the "at-risk" students.

III. Establish academic support for "at-risk" students through peer tutoring.

I. STUDENT ACADEMIC SUPPORT

Prior to entering the College of Nursing, all students took several pre-admission tests. These tests were for diagnostic purposes and consisted of the Nelson-Denny Reading exam, the STEP Chemistry test, the STEP Biology test and a general nursing vocabulary exam. The reading comprehension score from the Nelson-Denny Reading exam determined the "risk status" of the students.

Students at-risk were identified prior to admission and were assigned to the Academic Enrichment Program immediately upon admission to the College of Nursing. The term "at-risk" was used for project purposes only. There was no stigma attached to students attending the academic enrichment sessions, because all students were informed of the program and encouraged to attend at any time. Students' test scores were confidential information and were discussed with each student on an individual basis only.

A second phase of diagnostic testing was administered to sophomore students during the orientation week of the Fall semester. Orientation testing consisted of the McGraw-Hill Study Skills test, the STEP Listening test and a pre-course nursing vocabulary test. These test scores identified students' deficiencies in various areas of study skills.

Post-testing for the Nelson-Denny Reading exam was completed every year for all students. All sophomore and junior students were post-tested with the McGraw-Hill Study Skills test and the STEP Listening test. The seniors took the Nelson-Denny Reading exam only at the end of the year for post-testing.

Student Remediation

The results of the diagnostic testing were analyzed each year. Based on the students' identified deficiencies, each level facilitator planned, prepared, and conducted remediation sessions for their respective students.

Academic Enrichment Group Sessions were held on a weekly basis every semester for all three levels of students.

Another unique feature of the group sessions was that study topics and practice activities were correlated with the weekly theoretical topics being presented in the students' respective nursing courses. Such correlation resulted in improved attendance and perceived relevance.

Math Enrichment Activities

The math specialist developed a pre-test to determine students' math deficiencies. Tutoring was provided in groups and on an individual basis. The nursing peer tutors also did math tutoring on a one-to-one basis.

All pre-clinical math exams were assessed and written by the math specialist to reflect the increased level of functioning required of the students as they progressed through the nursing program. Students on all class levels were tutored by the math specialist if they were unsuccessful on the first or second pre-clinical math exam.

Student Workshops

Each year two to four special workshops have been presented to all students in each class level. The workshop topics have included a variety of study skills, test taking skills and pertinent nursing clinical topics.

The majority of the workshops have been presented by consultants who are experts in the topic being presented.

II. FACULTY TRAINING PROGRAM

A unique component of the Academic Enrichment Project was the participation of a reading consultant in training the nursing faculty to teach reading comprehension, diagnose students' academic deficiencies, and utilize remediation strategies according to the students' identified learning needs. Using this approach, at-risk students received assistance tailored to the nursing curriculum from instructors knowledgeable about it.

The nursing faculty participated in a five-week academic enrichment training session during the Summer which was followed with monthly sessions with the reading consultant during the academic year. The initial training was comprised of two parts. Part one was an overview of the project, a description of the diagnostic model, and an introduction to the role faculty would contribute to the project after the training. Included in the instruction was how to administer, score and interpret results of the diagnostic tests.

Part two of the training consisted of instruction in remediation techniques which focused on the two sets of factors that affect students' abilities to learn from their textbooks: text factors and student factors. During this part of the training, faculty members learned to plan, develop and provide academic enrichment services for their students.

All Faculty Workshops

Throughout the three-year project, faculty development sessions and workshops have been presented to the entire faculty. These workshops were held to provide all faculty members with knowledge of the project, innovative teaching methods, and improved skills for teaching disadvantaged students. At least two outside consultants were invited to present teaching topics in their area of expertise each academic year.

III. PEER TUTORING

At the beginning of the three-year project, a peer tutoring network was established. The purpose of this network was to assist in individual student tutoring. Both nursing students and intended nursing majors were provided assistance. Peer tutors were chosen, based on identified criteria, from students matriculating in the nursing program. They assumed their role after an eight hour orientation. An on-going support system has been provided by the peer tutor faculty advisor for the peer tutors as needed.

The Nursing Learning Resource Center has a variety of audio-visual materials and nursing simulators available for student use. Students may use these resources for individual learning or with peer tutors for additional learning experiences.

Project Summary

The objectives of the project are on-going. Each phase of the project is evaluated periodically according to a proposed plan. Long range goals of the project are to permanently establish the project plan within the framework of the College of Nursing and to share the project model with colleges and universities that have students at-risk in their nursing programs.

Funding Information

The three-year Academic Enrichment Studies Grant was funded by the Department of Health and Human Services in July of 1986. Implementation with the students then began with the Fall 1986 semester. The majority of the students participating in the project were black females with the age range of 20-52. In addition to being academically disadvantaged, many of the students have families and are employed in order to attend college.

The grant funding provides the following project personnel:

1) A full-time project coordinator,
2) Three part-time faculty to serve as level facilitators (one for each level in the curriculum),
3) One part-time reading consultant,

4) One part-time mathematics specialist,

5) One part-time secretary, and

6) A maximum of eight peer tutors.

Although most of the grant funding is to provide the specific services of the project personnel, funding also includes consultant services, specialized learning materials for students, training materials for faculty, standardized testing materials, specific learning equipment and project faculty travel. Annual total cost of the project has been approximately $130,000.

RESULTS

Results of the statistical analysis show that academic enrichment has had a positive effect for the academically disadvantaged students (at-risk) in the following:

1. Determinates of academic success in nursing, NLN Comprehensive Achievement Test and the NCLEX-RN pass rates.
2. Determinates of academic progress in nursing; pre-requisite academic skills, attrition and nursing course performance.

The at-risk students scored similarly to the non-risk students on the NLN comprehensive test and the NCLEX-RN, even though the two groups started out differently (at-risk students almost three grade levels lower in reading comprehension). The percent of at-risk students passing the NLN comprehensive surpassed that of the non-risk students.

The July percent of pass rate for at-risk students on the NCLEX-RN was 65-100 percent for the three classes that graduated during the project. The July NCLEX-RN pass rates for all seniors that graduated during the project period were as follows:

1987 - 78%

1988 - 83%

1989 - 91%

The majority of the graduates take the NCLEX-RN in July; however, those graduates taking the NCLEX-RN in February as first time takers have achieved 100 percent pass rates during the three-year project. This increased the percentages listed above when both rates were considered together. Except for the July, 1987, test, the CSU graduates have equalled or surpassed the state and national NCLEX-RN pass rates since the initial academic enrichment pilot project in 1984-85.

The at-risk students performed similarily to the non-risk students in terms of nursing course success. The at-risk students equalled the non-risk students' improvement in reading comprehension and surpassed the non-risk students' in the area of study skills. The total annual attrition rate decreased to 13.1% (June, 1989) from 45% since the initial academic enrichment pilot project.

When the nursing tests were correlated, the Mosby Assess Test was found to be a good predictor of success on the NLN comprehensive and NCLEX-RN only for the at-risk

students. This suggests that once academic enrichment diminishes the effects of limited pre-requisite skills, i.e., reading comprehension, then the Mosby Assess Test is not a good predictor of student success. The NLN Comprehensive Achievement Test seems to be a good predictor for both non-risk and at-risk students.

The statistical evidence shows that academic enrichment had a positive effect for at-risk students and for the non-risk students as well. In order to have academic enrichment available for all students, the non-risk students were encouraged to attend. During the project period, many non-risk students did attend the group sessions, especially during the senior year, and a high percentage of non-risk students also attended the all student workshops. Another reason may be due to the effect that faculty training had on each faculty member's teaching style during the project, which benefited all students. As a result, the statistical analysis shows that academic enrichment had a beneficial effect on academic success for non-risk students as well as for the at-risk students.

CONCLUSIONS AND RECOMMENDATIONS

The statistical findings will be used to further evaluate specific project areas as listed below.

1. Student Support: The effects of the academic enrichment project are positive and seems to assist both at-risk and non-risk students with nursing

academic success in nursing. Therefore, the academic enrichment group sessions, all student workshops and tutoring by trained faculty membes should be continued.

2. Student Testing: The statistical evidence shows that the Nelson-Denny Reading Test does identify at-risk students and does predict college success for nursing students. The use of the Nelson-Denny Reading Test should be continued for the reasons stated above. The McGraw-Hill problem-solving test was found to be an inaccurate measure of problem- solving skills needed for success in the nursing program. This test should be replaced with a more accurate test. The project personnel should continue trying to locate an appropriate standardized problem solving test to serve this purpose.

When assessing the statistical analysis of test correlations, it was noted that the National League for Nursing Comprehensive Achievement Test did predict NCLEX-RN success for both non-risk and at-risk students for this student population. Therefore, use of this test should be continued for all senior students in the nursing program.

According to the findings of these statistics, the value of the end-of-course NLN test was not evident. On these tests, both non-risk and at-risk students scored below the 50th percentile, yet both groups have consistently passed the NLN Comprehensive Achievement

Test and the NCLEX-RN. These tests should be re-evaluated by the project personnel.

For this population of students, the Mosby Assess Test did not appear to be a predictor of NCLEX-RN success for non-risk students. This also suggests that once academic enrichment minimizes the effect of limited reading skills, it might not be an effective predictor for at-risk students either. However, the test does provide students with valuable practice in taking standardized exams. Therefore, this test should be re-evaluated at the end of the next two years with results from a larger group of senior students.

3. Pre-admission Testing: On the basis of these statistical findings, the pre-admission tests should be continued and reconsidered again at the end of the next two years. At that time there will be a larger number of student results to analyze. Also, at that time a comparison could be made between students who repeated any of the pre-requisite science courses with those who did not repeat any of the pre-requisite science courses.

4. Returning Students: The statistical analysis showed that pass rates for the NLN comprehensive and the NCLEX-RN were slightly higher when students did not have any interruptions in their nursing program. This information again shows that students who have interruptions in their nursing program have more

difficulty achieving the same level of academic success by the time they graduate. This can be especially true for at-risk students who have interruptions in their nursing program. The plan outlined in the two-year extension grant proposal to provide returning students with additional support will be utilized and re-evaluated again at the end of that time period.

Data collection will be continued and another statistical analysis will be done at the of the 1990-91 academic year. At that time there will be a total of five graduating classes (instead of three) to be included for further evaluation and comparison.

Based on this initial statistical analysis it appears that the various aspects of the academic enrichment project, i.e., student support, faculty training, and peer tutoring have had a positive effect for all students in achieving academic success in this baccalaureate nursing program.

General Recommendation Summary

Chicago State University College of Nursing does not propose that this project is a solution to all the problems that faculty encounter with students in baccalaureate nursing education. It is not recommended that schools of nursing adopt this project model exactly as outlined. However, this project model demonstrates that academic

enrichment/student support programs do work if administration and faculty together identify what problems the students are having with their academic skills. In so doing, various aspects of this project model could then be applied to nursing or any other academic discipline.

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